UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/029,436 | 12/19/2001 | Kelli E. Smith | 1795/55180-A/JPW/ANX | 5263 |

7590 11/18/2004

John P. White
Cooper & Dunham, LLP
1185 Avenue of the Americas
New York, NY 10036

| EXAMINER | |
|---|---|
| BASI, NIRMAL SINGH | |
| **ART UNIT** | **PAPER NUMBER** |
| 1646 | |

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/029,436 | SMITH ET AL. | |
| | Examiner | Art Unit | |
| | Nirmal S. Basi | 1646 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *145 and 146* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *145 and 146* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/19/01* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/19/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Amendment filed 12/19/01 has been entered. Applicant has cancelled claims 1-144 and added new claims 145-146. New claims 145 and 146 drawn to recombinant nucleic acid comprising the nucleic acid of SEQ ID NO:1 and contained in the plasmid hp15a.

2.. The disclosure is objected to because of the following informalities:

"BRIEF DESCRIPTION OF THE FIGURES", on page 16 should be changed to BRIEF DESCRIPTION OF THE DRAWINGS, to describe the drawings. See MPEP 608.01(f).

Appropriate correction is required.

### *Claim Rejections - 35 USC § 101 and 35 USC § 112, 1st paragraph*

The following is a quotation of 35 U.S.C. 101:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 145-146 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

A "specific utility" is a utility that is specific to the subject matter claimed, as opposed to a "general utility" that would be applicable to the broad class of the invention. A "substantial utility" is a utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities. A "well established utility" is a utility that is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art. A "well established utility" must also be specific and substantial as well as credible.

Based on the record, there is not a "well established utility" for the claimed invention. Applicant has asserted utilities for the specifically claimed invention of claims 145-146. The claims are directed to recombinant nucleic acid comprising a nucleic acid (SEQ ID NO:1), encoding the human hp15a receptor polypeptide of SEQ ID NO:2.

The specification discloses: hp15a is a G protein coupled receptor and has differential pattern of expression in various cell types (Fig. 3 and table 1); hp15a may be used in drug screening assays or diagnostic assays; hp15a may be used to treat disease states. The specification discloses that the polynucleotide SEQ ID NO:1 encodes the G -protein coupled (hp15a) receptor SEQ ID NO:2.

The applicant has mentioned general functional activities, which may be applicable to known G-protein coupled receptors, but has not disclosed any specific activity associated with the specific hp15a receptor of instant invention. The specification states on page 2, first paragraph, that the orphan "hp15a receptor gene encodes a novel GPCR of unknown function". Further no ligands that bind to hp15a receptor are disclosed. No G-proteins that interact with claimed receptor are disclosed. The specification suggests that hp15a receptor of the present invention are members of the seven-transmembrane receptor family based solely on homology to known G-protein coupled receptors. In light of the specification the skilled artisan can speculate that the polypeptide of SEQ ID NO:2 is a seven transmembrane protein belonging to the G-protein coupled receptor super family. However, apart from the disclosure of SEQ ID NOS:1 and 2, no other disclosure is provided within the instant specification of the structural and functional features possessed by the hp15a receptor protein, or how to specifically assay for such. Ligands that bind hp15a receptor protein are not disclosed. Further, no disease states directly related to hp15a receptor dysfunction are disclosed.

The utilities asserted by Applicant are not specific or substantial. Since no specific function of the hp15a receptor of instant invention is known, the hypothesized function is based entirely on conjecture from homologous polypeptides or polynucleotides. The asserted utilities are not specific to instant hp15a receptor, but rather are based on family attributes. Neither, the specification, nor the art of record disclose the nucleic acid of SEQ ID NO:1, encoding the protein of SEQ ID NO:2, is useful to identify drugs that affect said protein and modulate its activity. Similarly,

neither the specification nor the art of record disclose any instances where disorders can be affected by interfering with the activity of hp15a receptor polypeptide. Thus the corresponding asserted utilities are essentially methods of using hp15a receptor to identify disease states associated claimed hp15a receptor dysfunction and as targets for drug discovery. Therefore the asserted utilities are essentially methods of testing for or for potentially treating unspecified, undisclosed diseases or conditions, which does not define a "real world" context of use. Treating or testing for compounds that interact with hp15a receptor which may be implicated in an unspecified, undisclosed disease or condition would require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use. Since neither the specification nor the art of record disclose any activities or properties that would constitute a "real world" context of use for the claimed hp15a receptor, further experimentation is necessary to attribute a utility to the claimed polypeptides. See Brenner v. Manson, 383 U.S. 519, 535-36, 148 USPQ 689, 696 (1966) (noting that "Congress intended that no patent be granted on a chemical compound whose sole 'utility' consists of its potential role as an object of use-testing", and stated, in context of the utility requirement, that "a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion."). Accordingly, the instant specification provides insufficient guidance on "how to use" the recombinant nucleic acid of instant invention.

The rejection under 35 USC § 101 and 35 USC § 112, 1st paragraph is based on the failure to disclose sufficient properties of the protein and/or polynucleotide to support an inference of utility. The hp15a receptor, encoded by the polynucleotide of SEQ ID

NO:1, belongs to a family in which the members have divergent functions. Assignment to this family does not support an inference of utility because the members are not known to share a common utility. There are some protein families for which assignment of a new protein in that family would convey a specific, substantial and credible utility to that protein. For example, some families of enzymes such as proteases, ligases, telomerases, share activities due to the particular specific biochemical characteristics of the members of the protein family such as non-specific substrate requirements, that are reasonably imputed to isolated compositions of any member of the family.

The diversity of the biochemical function and the wide range of regulatory pathways involving GTP-binding proteins is known in the art (see below Mudroch et al, Review Article, and Watson et al, both references are in the IDS supplied by Applicant). Without some common biological activity for the family members, a new member would not have a specific, substantial, or credible utility when relying only on the fact that it has structural similarity to the other family members. The members of the family have different biological activities, which may be related to tissue distribution, but there is no evidence that the claimed compounds share any one of diverse number of activities. That is, no activity is known to be common to all members. Further, to argue that all the members can be used to identify disease states associated with hp15a receptor polypeptide dysfunction and as targets for drug discovery, is to argue a general, nonspecific utility that would apply to virtually every member of the family, contrary to the evidence. Further, any compound could be considered as a regulator or modulator of tissue in that any compound, if administered in the proper amount, will stimulate or

inhibit tissue. For example, salt, ethanol, and water are all compounds which will kill cells if administered in a great enough amount, and which would stimulate cells from which these compounds had been withheld, therefore, they could be considered regulators or modulators of tissue. However, use of these compounds for the modulation of tissue would not be considered a specific and substantial utility unless there was some disclosure of, for example, a specific and particular combination of compound/composition and application of such in some particular environment of use.

Without knowing a biological significance of the human hp15a receptor, one of ordinary skill in the art would not know how to use the claimed invention in its currently available form in a credible "real world" manner based on the diversity of biological activities possessed by GTP-binding proteins. Contrast *Brenner*, 148 USPQ at 694 (despite similarity with adjacent homologue, there was insufficient likelihood that the steroid would have similar tumor-inhibiting characteristics), with *In re Folkers*, 145 USPQ 390, 393 (CCPA 1965) (some uses can be immediately inferred from a recital of certain properties) or *In re Brana*, 34 USPQ 1436, 1441 (Fed. Cir. 1995) (evidence of success in structurally similar compounds is relevant in determining whether one skilled in the art would believe an asserted utility; here, an implicit assertion of a tumor target was sufficiently specific to satisfy the threshold utility requirement).

Review of the references by Mudroch et al, and Watson et al highlighting the highly divergent nature of G-protein coupled receptors follows:

Mudroch et al discloses, the superfamily of G-protein-coupled receptors are highly divergent in their effects and include receptors for hormones, neurotransmitters,

paracrine substances, inflammatory mediators, certain proteinases, taste and odorant molecules, and even photons and calcium ions (page 3032, introduction). Members of a sub-family of G-protein-coupled receptors are also highly divergent in their effects, as highlighted by Mudroch et al, in the discussion of cytokine G-protein-coupled receptors (see pages 3032-3039). The utility of GPCR cannot be implicated solely from homology to known G-protein coupled receptors because the art does not provide teaching stating that all members of a sub-family of G-protein coupled receptors must have the same effects, the same ligands and be involved in the same disease states, the art discloses evidence to the contrary. For example, Mudroch et al discloses even though CCR6 is a member of the chemokine G-protein coupled receptors family and IL-2 was shown to up-regulate CCR6 mRNA recent data contradict this finding, and as a consequence, the effect of IL-2 on CCR6 expression remains uncertain (page 3035, second column, first paragraph). Further, the unpredictability of determining the G-protein associated with specific G-protein coupled receptors is highlighted by Watson et al (page 5, third paragraph), who disclose,"Site directed mutagenesis, deletions and chimeric receptor studies have been used in an attempt to identify the region of the $\beta$2 adreoceptor that couples with Gs. This work has highlighted a sequence of ~8 amino acids in the N-terminal and ~12 amino acids in the C-terminus of the third transmembrane loop as important determinants of this interaction. However, it appears that additional regions of the receptor also participate in the binding to the G-protein, most notably in the second intracellular loop, and that it is the overall 3-dimensional structure of the receptor on the cytoplasmic side of the membrane that is important for

the interaction with G-protein. It has therefore not been possible to identify consensus amino acid sequences that confer G-protein specificity, and thus G-protein interactions cannot be predicted from the primary amino acid sequence", (page 5, third paragraph). Therefore the disclosure of Watson predicts, using the primary structure of the G-protein coupled receptor the skilled artisan cannot predict its associated G-protein. The GPCR of instant invention is considered by the examiner to be a member of the orphan receptor of G-protein coupled receptors i.e. seven transmembrane receptor with no known endogenous ligands. Watson et al devote a whole chapter to orphan G-protein coupled receptors and group them separately because even though the orphan receptors posses a certain degree of homology to G-protein coupled receptors with known function, the orphan receptors require further research before they can be classified into one of the groupings of known G-protein coupled receptors (Ref B, pages 223-230). Further, the hp15a may be related, through homology, to other receptors, but the art shows it requires more than the disclosed homology to assign a function to an orphan receptor, knowledge of the endogenous ligand for the receptor is required. The assumption that an orphan receptor be placed in a particular group is not always true as highlighted by the statement Watson, who states, "It was originally claimed that the human homologue of RDC1 codes for VIP receptor, but this is no longer thought to be correct" (page 228).

Since neither the specification nor the art of record disclose any activities or properties that would constitute a "real world" context of use for the claimed nucleic acid encoding hp15a receptor, further experimentation is necessary to attribute a utility to the

claimed nucleic acid and protein encoded. The instant application does not disclose the biological role of hp15a receptor or its significance. The utilities are not considered to be specific and substantial because the specification fails to disclose any particular function or biological significance for the hp15a receptor of the instant invention. The disclosed protein, whose cDNA has been isolated, is said to have a potential function based upon its amino acid sequence similarity to other known proteins. After further research, a specific and substantial credible utility might be found for the claimed isolated compositions. This further characterization, however, is part of the act of invention and until it has been undertaken, Applicants' claimed invention is incomplete.

The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (1966), in which a novel compound which was structurally analogous to other compounds which were known to possess anti-tumor activity was alleged to be potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. §101, which requires that an invention must have either an immediately apparent or fully disclosed "real world" utility. The court held that:

> The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. . . . [u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field. . . . a patent is

> not a hunting license. . . .[i]t is not a reward for the search, but compensation for its successful conclusion.

Claims 145-146 are drawn to a nucleic acid encoding hp15a receptor. The hp15a receptor, as yet, has an undetermined function or biological significance. There is no evidence of record or any line of reasoning that would support a conclusion that the hp15a receptor of the instant application was, as of the filing date, useful for diagnosis, prevention, and treatment of disease any disease. Until some actual and specific significance can be attributed to the hp15a receptor, or the gene encoding it, one of ordinary skill in the art would be required to perform additional experimentation in order to determine how to use the claimed invention. Thus, there was no immediately apparent or "real world" utility as of the filing date.

The DNA of the instant invention and the protein encoded thereby are compounds, which share some structural similarity to receptor proteins having GPCR domains based on sequence similarity. As disclosed by the specification, the family of proteins related to hp15a receptor may have diverse effects and bind a diverse number of ligands. The family of proteins having GPCR like domains has different levels of expression, and play roles in the pathogenesis of various diseases. Although the family of receptor proteins having GPCR like domains may share some common structural motifs, various members of the family may have different sites of action and different biological effects. In the absence of knowledge of the ligand for GPCR or the biological significance of this protein, there is no immediately evident patentable use. To employ a protein of the instant invention in any of the disclosed methods would clearly be using it as the object of further research. Such a use has been determined by the courts to be

a utility, which, alone, does not support patentability. Since the instant specification does not disclose a credible "real world" use for GPCR, then the claimed invention as disclosed does not meet the requirements of 35 U.S.C. §101 as being useful.

4. Claims 145-146 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. Neither the specification nor the art of record disclose any activities or properties that would constitute a "real world" context of use for the claimed recombinant nucleic acid comprising a nucleic acid (SEQ ID NO:1) encoding the human hp15a receptor polypeptide of SEQ ID NO:2.

5. **Claim Rejections, 35 U.S.C. 102,**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 145 and 146 are rejected under 35 U.S.C. 102(e) as being anticipated by Sathe et al (US Patent 5,976,834). Sathe et al disclose a nucleic acid, which has 100% query match and 100% best local similarity to nucleotides 61-1251 of SEQ ID NO:1 of instant invention and has 100% query match and 100% best local similarity to SEQ ID NO:2 of instant invention. The polypeptide disclosed by Sathe (SEQ ID NO:2) is encoded by the nucleic acid of SEQ ID NO:1, thereby meeting the limitations of claims 145 and 146.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirmal S. Basi whose telephone number is 571-272-0868. The examiner can normally be reached on 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda G Brumback can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nirmal S. Basi
Art5 Unit 1646
November 15, 2004

BRENDA BRUMBACK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Matches 396; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MWNSSDANFSCYHESVLGYRYVAVSWGVVVAVTGTVGNVLTLLALAIQPKLRTRFNLLIA 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MWNSSDANFSCYHESVLGYRYVAVSWGVVVAVTGTVGNVLTLLALAIQPKLRTRFNLLIA 60

Qy         61 NLTLADLLYCTLLQPFSVDTYLHLHWRTGATFCRVFGLLLFASNSVSILTLCLIALGRYL 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 NLTLADLLYCTLLQPFSVDTYLHLHWRTGATFCRVFGLLLFASNSVSILTLCLIALGRYL 120

Qy        121 LIAHPKLFPQVFSAKGIVLALVSTWVVGVASPAPLWPIYILVPVVCTCSFDRIRGRPYTT 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 LIAHPKLFPQVFSAKGIVLALVSTWVVGVASPAPLWPIYILVPVVCTCSFDRIRGRPYTT 180

Qy        181 ILMGIYFVLGLSSVGIFYCLIHRQVKRAAQALDQYKLRQASIHSNHVARTDEAMPGRFQE 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 ILMGIYFVLGLSSVGIFYCLIHRQVKRAAQALDQYKLRQASIHSNHVARTDEAMPGRFQE 240

Qy        241 LDSRLASGGPSEGISSEPVSAATTQTLEGDSSEVGDQINSKRAKQMAEKSPPEASAKAQP 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 LDSRLASGGPSEGISSEPVSAATTQTLEGDSSEVGDQINSKRAKQMAEKSPPEASAKAQP 300

Qy        301 IKGARRAPDSSSEFGKVTRMCFAVFLCFALSYIPFLLLNILDARVQAPRVVHMLAANLTW 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 IKGARRAPDSSSEFGKVTRMCFAVFLCFALSYIPFLLLNILDARVQAPRVVHMLAANLTW 360

Qy        361 LNGCINPVLYAAMNRQFRQAYGSILKRGPRSFHRLH 396
              ||||||||||||||||||||||||||||||||||||
Db        361 LNGCINPVLYAAMNRQFRQAYGSILKRGPRSFHRLH 396
```

RESULT 2
US-07-626-618A-18
; Sequence 18, Application US/07626618A
; Patent No. 5422265
; GENERAL INFORMATION:
; APPLICANT: Van Tol, Hubert H.M.
; APPLICANT: Civelli, Olivier
; TITLE OF INVENTION: A No. 5422265el Human Dopamine Receptor and Uses
; NUMBER OF SEQUENCES: 22
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Allegretti & Witcoff, Ltd.
; STREET: 10 South Wacker Drive, Suite 3000
; CITY: Chicago
; STATE: Illinois
; COUNTRY: USA
; ZIP: 60606
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/626,618A
; FILING DATE: 7 DEC 1990
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: No. 5422265nan, Kevin E
; REGISTRATION NUMBER: 35,303
; REFERENCE/DOCKET NUMBER: 90,1092
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 312-715-1000
; TELEFAX: 312-715-1234
; TELEX: 810-221-8317
; INFORMATION FOR SEQ ID NO: 18:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 443 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
US-07-626-618A-18

Query Match 14.4%; Score 293; DB 1; Length 443;
Best Local Similarity 25.9%; Pred. No. 2.8e-18;
Matches 115; Conservative 66; Mismatches 179; Indels 84; Gaps 16;

```
Qy          2 WNSSDANFSCYHESVLGYRYVAVSWGVVVAVTGTVGNVLTLLALAIQPKLRTRFNLLIAN 61
              :| ||        |     | | |    :::||    ||||  :|:: :  |:|  | || :
Db         22 FNGSDGKADRPH-----YHYYATLLTLLIAVI-VFGNVLVCMAVSREKALQTTTNYLIVS 75

Qy         62 LTLADLLYCTLLQPFSVDTYLHL--HWRTGATFCRVFGLLLFASNSVSILTLCLIALGRY 119
              | :|||  ||: |: |  || :   |:     | :|  |    : ||| || |:: ||
Db         76 LAVADLLVATLVMPWVV--YLEVVGEWKFSRIHCDIFVTLDVMMCTASILNLCAISIDRY 133

Qy        120 LLIAHPKLFPQVFSAKGIVLALVSTWVVGVASFAPLWPIYILVPVVCTCSFDRIRGRPYT 179
              :| | |:   :|:|  |  ::|  :| | ||          : |   |
Db        134 TAVAMPMLYNTRYSSKRRVTVMIS--IVWVLSFT----------ISCPLLFGLNNADQNE 181

Qy        180 TILMGIYFVLGLSSVGIF-------------YCLIHRQ-----VKRAAQAL--------- 212
              |:    ||:  | |  :              | :: |:      ||:::|
Db        182 CIIANPAFVVYSSIVSFYVPFIVTLLVYIKIYIVLRRRRKRVNTKRSSRAFRAHLRAPLK 241

Qy        213 ------DQYKLRQASIHSN-----HVARTDEAMPGRFQELD-SRLASGGPSEGISSEPVS 260
                   :  ||    : ||     :  | | |   | |||:   |:|  | |     |:
Db        242 GNCTHPEDMKLCTVIMKSNGSFPVNRRRVDAAR--RAQELEMEMLSSTSPPERTRYSPIP 299

Qy        261 AATTQTLEGDSSEVG----------------DQINSKRAKQMAEKSPPEASAKAQPIKGA 304
              :  |    | |  |                : : | ||   :: |   :   :|
Db        300 PSHHQLTLPDPSHHGLHSTPDSPAKPEKNGHAKDHPKIAKIFEIQTMPNGKTRTS-LKTM 358

Qy        305 RRAPDSSSEFGKVTRMCFAVFLCFALSYIPFLLLNILDARVQAPRVVHMLAANLTWL--- 361
              |  |  :  | |:|   |   | : ::|| : :||:       :  :| :  |||
Db        359 SRRKLSQQKEKKATQMLAIVLGVFIICWLPFFITHILNIHCDC-NIPPVLYSAFTWLGYV 417

Qy        362 NGCINPVLYAAMNRQFRQAYGSIL 385
              |  :||::|   | :||:|:  ||
Db        418 NSAVNPIIYTTFNIEFRKAFLKIL 441
```

RESULT 3
US-08-333-977-18
; Sequence 18, Application US/08333977
; Patent No. 5594108
; GENERAL INFORMATION:
; APPLICANT: Van Tol, Hubert H.M.
; APPLICANT: Civelli, Olivier
; TITLE OF INVENTION: A No. 5594108el Human Dopamine Receptor and Uses
; NUMBER OF SEQUENCES: 22
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Allegretti & Witcoff, Ltd.
; STREET: 10 South Wacker Drive, Suite 3000
; CITY: Chicago
; STATE: Illinois
; COUNTRY: USA
; ZIP: 60606
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/333,977
; FILING DATE: 03-NOV-1994
; CLASSIFICATION: 530
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/626,618
; FILING DATE: 7 DEC 1990
; ATTORNEY/AGENT INFORMATION:
; NAME: No. 5594108nan, Kevin E
; REGISTRATION NUMBER: 35,303
; REFERENCE/DOCKET NUMBER: 90,1092
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 312-715-1000
; TELEFAX: 312-715-1234
; TELEX: 810-221-8317

```
RESULT 1
US-08-775-428-1
; Sequence 1, Application US/08775428
; Patent No. 5976834
;  GENERAL INFORMATION:
;    APPLICANT:  Sathe, Ganesh
;    APPLICANT:  Fuetterer, Wendy
;    APPLICANT:  Bergsma, Derk
;    APPLICANT:  Ellis, Catherine
;    TITLE OF INVENTION:  cDNA CLONE HNFJD15 THAT ENCODES
;    TITLE OF INVENTION:  A NOVEL HUMAN 7-TRANSMEMBRANE RECEPTOR
;    NUMBER OF SEQUENCES:  2
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  SmithKline Beecham Corporation
;      STREET:  709 Swedeland Road
;      CITY:  King of Prussia
;      STATE:  PA
;      COUNTRY:  USA
;      ZIP:  19406
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/775,428
;      FILING DATE:  09-JAN-1997
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Han, William T
;      REGISTRATION NUMBER:  34,344
;      REFERENCE/DOCKET NUMBER:  ATG50042
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  610-270-5219
;      TELEFAX:  610-270-4060
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1498 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-775-428-1

  Query Match             100.0%;  Score 1191;  DB 2;  Length 1498;
  Best Local Similarity   100.0%;  Pred. No. 0;
```

```
 Matches 1191;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

f          1 ATGTGGAACAGCTCTGACGCCAACTTCTCCTGCTACCATGAGTCTGTGCTGGGCTATCGT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
o         76 ATGTGGAACAGCTCTGACGCCAACTTCTCCTGCTACCATGAGTCTGTGCTGGGCTATCGT 135

f         61 TATGTTGCAGTTAGCTGGGGGGTGGTGGTGGCTGTGACAGGCACCGTGGGCAATGTGCTC 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
o        136 TATGTTGCAGTTAGCTGGGGGGTGGTGGTGGCTGTGACAGGCACCGTGGGCAATGTGCTC 195

y        121 ACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACCCGATTCAACCTGCTCATAGCC 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        196 ACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACCCGATTCAACCTGCTCATAGCC 255

y        181 AACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTTCAGCCCTTCTCTGTGGACACC 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        256 AACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTTCAGCCCTTCTCTGTGGACACC 315

y        241 TACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGCAGGGTATTTGGGCTCCTCCTT 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        316 TACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGCAGGGTATTTGGGCTCCTCCTT 375

y        301 TTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTCATCGCACTGGGACGCTACCTC 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        376 TTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTCATCGCACTGGGACGCTACCTC 435

y        361 CTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGTGCCAAGGGGATAGTGCTGGCA 420
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        436 CTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGTGCCAAGGGGATAGTGCTGGCA 495

y        421 CTGGTGAGCACCTGGGTTGTGGGCGTGGCCAGCTTTGCTCCCCTCTGGCCTATTTATATC 480
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        496 CTGGTGAGCACCTGGGTTGTGGGCGTGGCCAGCTTTGCTCCCCTCTGGCCTATTTATATC 555

y        481 CTGGTACCTGTAGTCTGCACCTGCAGCTTTGACCGCATCCGAGGCCGGCCTTACACCACC 540
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        556 CTGGTACCTGTAGTCTGCACCTGCAGCTTTGACCGCATCCGAGGCCGGCCTTACACCACC 615

y        541 ATCCTCATGGGCATCTACTTTGTGCTTGGGCTCAGCAGTGTTGGCATCTTCTATTGCCTC 600
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        616 ATCCTCATGGGCATCTACTTTGTGCTTGGGCTCAGCAGTGTTGGCATCTTCTATTGCCTC 675

y        601 ATCCACCGCCAGGTCAAACGAGCAGCACAGGCACTGGACCAATACAAGTTGCGACAGGCA 660
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
b        676 ATCCACCGCCAGGTCAAACGAGCAGCACAGGCACTGGACCAATACAAGTTGCGACAGGCA 735

y        661 AGCATCCACTCCAACCATGTGGCCAGGACTGATGAGGCCATGCCTGGTCGTTTCCAGGAG 720
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       736 AGCATCCACTCCAACCATGTGGCCAGGACTGATGAGGCCATGCCTGGTCGTTTCCAGGAG 795

Qy       721 CTGGACAGCAGGTTAGCATCAGGAGGACCCAGTGAGGGGATTTCATCTGAGCCAGTCAGT 780
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       796 CTGGACAGCAGGTTAGCATCAGGAGGACCCAGTGAGGGGATTTCATCTGAGCCAGTCAGT 855

Qy       781 GCTGCCACCACCCAGACCCTGGAAGGGGACTCATCAGAAGTGGGAGACCAGATCAACAGC 840
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       856 GCTGCCACCACCCAGACCCTGGAAGGGGACTCATCAGAAGTGGGAGACCAGATCAACAGC 915

Qy       841 AAGAGAGCTAAGCAGATGGCAGAGAAAAGCCCTCCAGAAGCATCTGCCAAAGCCCAGCCA 900
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       916 AAGAGAGCTAAGCAGATGGCAGAGAAAAGCCCTCCAGAAGCATCTGCCAAAGCCCAGCCA 975

Qy       901 ATTAAAGGAGCCAGAAGAGCTCCGGATTCTTCATCGGAATTTGGGAAGGTGACTCGAATG 960
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       976 ATTAAAGGAGCCAGAAGAGCTCCGGATTCTTCATCGGAATTTGGGAAGGTGACTCGAATG 1035

Qy       961 TGTTTTGCTGTGTTCCTCTGCTTTGCCCTGAGCTACATCCCCTTCTTGCTGCTCAACATT 1020
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1036 TGTTTTGCTGTGTTCCTCTGCTTTGCCCTGAGCTACATCCCCTTCTTGCTGCTCAACATT 1095

Qy      1021 CTGGATGCCAGAGTCCAGGCTCCCCGGGTGGTCCACATGCTTGCTGCCAACCTCACCTGG 1080
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1096 CTGGATGCCAGAGTCCAGGCTCCCCGGGTGGTCCACATGCTTGCTGCCAACCTCACCTGG 1155

Qy      1081 CTCAATGGTTGCATCAACCCTGTGCTCTATGCAGCCATGAACCGCCAATTCCGCCAAGCA 1140
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1156 CTCAATGGTTGCATCAACCCTGTGCTCTATGCAGCCATGAACCGCCAATTCCGCCAAGCA 1215

Qy      1141 TATGGCTCCATTTTAAAAAGAGGGCCCCGGAGTTTCCATAGGCTCCATTAG 1191
           ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1216 TATGGCTCCATTTTAAAAAGAGGGCCCCGGAGTTTCCATAGGCTCCATTAG 1266


RESULT 2
US-09-364-425B-22
; Sequence 22, Application US/09364425B
; Patent No. 6653086
; GENERAL INFORMATION:
;  APPLICANT: Behan, Dominic P.
;  APPLICANT:  Chalmers, Derek T.
;  APPLICANT:  Liaw, Chen W.
;  APPLICANT:  Lin, I-Lin
;  APPLICANT:  Lowitz, Kevin P.
;  APPLICANT:  Chen, Ruoping
;  TITLE OF INVENTION: Endogenous,Constitutively Activated G Protein-Coupled Orphan Rece
;  FILE REFERENCE: Aren0047
;  CURRENT APPLICATION NUMBER: US/09/364,425B
;  CURRENT FILING DATE:  2001-12-18
;  PRIOR APPLICATION NUMBER: 60/094,879
;  PRIOR FILING DATE: 1998-07-31
;  PRIOR APPLICATION NUMBER: 60/106,300
;  PRIOR FILING DATE: 1998-10-30
;  PRIOR APPLICATION NUMBER: 60/110,906
;  PRIOR FILING DATE: 1998-12-04
;  PRIOR APPLICATION NUMBER: 60/121,851
;  PRIOR FILING DATE: 1999-02-26
;  NUMBER OF SEQ ID NOS: 60
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 22
;   LENGTH: 1382
;   TYPE: DNA
;   ORGANISM: Homo sapiens
US-09-364-425B-22

  Query Match             7.4%;  Score 87.8;  DB 4;  Length 1382;
  Best Local Similarity   53.7%;  Pred. No. 7.3e-15;
  Matches  182;  Conservative    0;  Mismatches  157;  Indels    0;  Gaps    0;

Qy        100 GGCACCGTGGGCAATGTGCTCACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACC 159
              | |  | |||| ||  || ||| | |  | |||||  ||   || || | ||||  |||
Db        181 GTCTGCCTGGGAAACCTGGTCATCGTGGTCACCTTGTACAAGAAGTCCTACCTCCTCACC 240

Qy        160 CGATTCAACCTGCTCATAGCCAACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTT 219
              |    ||||  | || |  || ||| || ||| |  |  ||||    | |  | |  |
Db        241 CTCAGCAACAAGTTCGTCTTCAGCCTGACTCTGTCCAACTTCCTGCTGTCCGTGTTGGTG 300

Qy        220 CAGCCCTTCTCTGTGGACACCTACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGC 279
              | ||| ||    |||   | || | ||| |  | | |||  |   ||||      |  |||
Db        301 CTGCCTTTTGTGGTGACGAGCTCCATCCGCAGGGAATGGATCTTTGGTGTAGTGTGGTGC 360

Qy        280 AGGGTATTTGGGCTCCTCCTTTTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTC 339
              |   | | ||  |||||     |       ||  |||| |  ||| || ||||| |  ||
Db        361 AACTTCTCTGCCCTCCTCTACCTGCTGATCAGCTCTGCCAGCATGCTAACCCTCGGGGTC 420

Qy        340 ATCGCACTGGGACGCTACCTCCTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGT 399
              || ||  | |  ||||||       |     |||| | | | | |||       |||
Db        421 ATTGCCATCGACCGCTACTATGCTGTCCTGTACCCCATGGTGTACCCCATGAAGATCACA 480

Qy        400 GCCAAGGGGATAGTGCTGGCACTGGTGAGCACCTGGGTT 438
              |  ||  ||  ||| ||||||| ||  || |||| ||
Db        481 GGGAACCGGGCTGTGATGGCACTTGTCTACATCTGGCTT 519


RESULT 3
US-08-748-485-2
; Sequence 2, Application US/08748485
```

RESULT 1
US-08-775-428-2
; Sequence 2, Application US/08775428
; Patent No. 5976834
; GENERAL INFORMATION:
; APPLICANT: Sathe, Ganesh
; APPLICANT: Fuetterer, Wendy
; APPLICANT: Bergsma, Derk
; APPLICANT: Ellis, Catherine
; TITLE OF INVENTION: cDNA CLONE HNFJD15 THAT ENCODES
; TITLE OF INVENTION: A NOVEL HUMAN 7-TRANSMEMBRANE RECEPTOR
; NUMBER OF SEQUENCES: 2
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SmithKline Beecham Corporation
; STREET: 709 Swedeland Road
; CITY: King of Prussia
; STATE: PA
; COUNTRY: USA
; ZIP: 19406
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FastSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/775,428
; FILING DATE: 09-JAN-1997
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER:
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Han, William T
; REGISTRATION NUMBER: 34,344
; REFERENCE/DOCKET NUMBER: ATG50042
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 610-270-5219
; TELEFAX: 610-270-4060
; TELEX:
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 396 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-775-428-2

Query Match 100.0%; Score 2041; DB 2; Length 396;
Best Local Similarity 100.0%; Pred. No. 7.3e-176;

```
RESULT 1
US-08-775-428-1
; Sequence 1, Application US/08775428
; Patent No. 5976834
;  GENERAL INFORMATION:
;    APPLICANT:  Sathe, Ganesh
;    APPLICANT:  Fuetterer, Wendy
;    APPLICANT:  Bergsma, Derk
;    APPLICANT:  Ellis, Catherine
;    TITLE OF INVENTION:  cDNA CLONE HNFJD15 THAT ENCODES
;    TITLE OF INVENTION:  A NOVEL HUMAN 7-TRANSMEMBRANE RECEPTOR
;    NUMBER OF SEQUENCES:  2
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  SmithKline Beecham Corporation
;      STREET:  709 Swedeland Road
;      CITY:  King of Prussia
;      STATE:  PA
;      COUNTRY:  USA
;      ZIP:  19406
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/775,428
;      FILING DATE:  09-JAN-1997
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Han, William T
;      REGISTRATION NUMBER:  34,344
;      REFERENCE/DOCKET NUMBER:  ATG50042
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  610-270-5219
;      TELEFAX:  610-270-4060
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1498 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-775-428-1

  Query Match             95.8%;  Score 1256.4;  DB 2;  Length 1498;
  Best Local Similarity   99.9%;  Pred. No. 0;
```

```
  Matches 1257;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy         49 TTAGCCTCTATCATGTGGAACAGCTCTGACGCCAACTTCTCCTGCTACCATGAGTCTGTG 108
Db         64 TCAGCCTCTATCATGTGGAACAGCTCTGACGCCAACTTCTCCTGCTACCATGAGTCTGTG 123

Qy        109 CTGGGCTATCGTTATGTTGCAGTTAGCTGGGGGGTGGTGGTGGCTGTGACAGGCACCGTG 168
Db        124 CTGGGCTATCGTTATGTTGCAGTTAGCTGGGGGGTGGTGGTGGCTGTGACAGGCACCGTG 183

Qy        169 GGCAATGTGCTCACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACCCGATTCAAC 228
Db        184 GGCAATGTGCTCACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACCCGATTCAAC 243

Qy        229 CTGCTCATAGCCAACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTTCAGCCCTTC 288
Db        244 CTGCTCATAGCCAACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTTCAGCCCTTC 303

Qy        289 TCTGTGGACACCTACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGCAGGGTATTT 348
Db        304 TCTGTGGACACCTACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGCAGGGTATTT 363

Qy        349 GGGCTCCTCCTTTTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTCATCGCACTG 408
Db        364 GGGCTCCTCCTTTTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTCATCGCACTG 423

Qy        409 GGACGCTACCTCCTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGTGCCAAGGGG 468
Db        424 GGACGCTACCTCCTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGTGCCAAGGGG 483

Qy        469 ATAGTGCTGGCACTGGTGAGCACCTGGGTTGTGGGCGTGGCCAGCTTTGCTCCCCTCTGG 528
Db        484 ATAGTGCTGGCACTGGTGAGCACCTGGGTTGTGGGCGTGGCCAGCTTTGCTCCCCTCTGG 543

Qy        529 CCTATTTATATCCTGGTACCTGTAGTCTGCACCTGCAGCTTTGACCGCATCCGAGGCCGG 588
Db        544 CCTATTTATATCCTGGTACCTGTAGTCTGCACCTGCAGCTTTGACCGCATCCGAGGCCGG 603

Qy        589 CCTTACACCACCATCCTCATGGGCATCTACTTTGTGCTTGGGCTCAGCAGTGTTGGCATC 648
Db        604 CCTTACACCACCATCCTCATGGGCATCTACTTTGTGCTTGGGCTCAGCAGTGTTGGCATC 663

Qy        649 TTCTATTGCCTCATCCACCGCCAGGTCAAACGAGCAGCACAGGCACTGGACCAATACAAG 708
Db        664 TTCTATTGCCTCATCCACCGCCAGGTCAAACGAGCAGCACAGGCACTGGACCAATACAAG 723

Qy        709 TTGCGACAGGCAAGCATCCACTCCAACCATGTGGCCAGGACTGATGAGGCCATGCCTGGT 768
Db        724 TTGCGACAGGCAAGCATCCACTCCAACCATGTGGCCAGGACTGATGAGGCCATGCCTGGT 783

Qy        769 CGTTTCCAGGAGCTGGACAGCAGGTTAGCATCAGGAGGACCCAGTGAGGGGATTTCATCT 828
Db        784 CGTTTCCAGGAGCTGGACAGCAGGTTAGCATCAGGAGGACCCAGTGAGGGGATTTCATCT 843

Qy        829 GAGCCAGTCAGTGCTGCCACCACCCAGACCCTGGAAGGGGACTCATCAGAAGTGGGAGAC 888
Db        844 GAGCCAGTCAGTGCTGCCACCACCCAGACCCTGGAAGGGGACTCATCAGAAGTGGGAGAC 903

Qy        889 CAGATCAACAGCAAGAGAGCTAAGCAGATGGCAGAGAAAAGCCCTCCAGAAGCATCTGCC 948
Db        904 CAGATCAACAGCAAGAGAGCTAAGCAGATGGCAGAGAAAAGCCCTCCAGAAGCATCTGCC 963

Qy        949 AAAGCCCAGCCAATTAAAGGAGCCAGAAGAGCTCCGGATTCTTCATCGGAATTTGGGAAG 1008
Db        964 AAAGCCCAGCCAATTAAAGGAGCCAGAAGAGCTCCGGATTCTTCATCGGAATTTGGGAAG 1023

Qy       1009 GTGACTCGAATGTGTTTTGCTGTGTTCCTCTGCTTTGCCCTGAGCTACATCCCCTTCTTG 1068
Db       1024 GTGACTCGAATGTGTTTTGCTGTGTTCCTCTGCTTTGCCCTGAGCTACATCCCCTTCTTG 1083

Qy       1069 CTGCTCAACATTCTGGATGCCAGAGTCCAGGCTCCCCGGGTGGTCCACATGCTTGCTGCC 1128
Db       1084 CTGCTCAACATTCTGGATGCCAGAGTCCAGGCTCCCCGGGTGGTCCACATGCTTGCTGCC 1143

Qy       1129 AACCTCACCTGGCTCAATGGTTGCATCAACCCTGTGCTCTATGCAGCCATGAACCGCCAA 1188
Db       1144 AACCTCACCTGGCTCAATGGTTGCATCAACCCTGTGCTCTATGCAGCCATGAACCGCCAA 1203

Qy       1189 TTCCGCCAAGCATATGGCTCCATTTTAAAAAGAGGGCCCCGGAGTTTCCATAGGCTCCAT 1248
Db       1204 TTCCGCCAAGCATATGGCTCCATTTTAAAAAGAGGGCCCCGGAGTTTCCATAGGCTCCAT 1263

Qy       1249 TAGAACTGTGACCCTAGTCACCAGAATTCAGGACTGTCTCCTCCAGGACCAAAGTGGC 1306
Db       1264 TAGAACTGTGACCCTAGTCACCAGAATTCAGGACTGTCTCCTCCAGGACCAAAGTGGC 1321
```

RESULT 2
US-09-364-425B-22
; Sequence 22, Application US/09364425B
; Patent No. 6653086
; GENERAL INFORMATION:
; APPLICANT: Behan, Dominic P.
; APPLICANT: Chalmers, Derek T.
; APPLICANT: Liaw, Chen W.
; APPLICANT: Lin, I-Lin
; APPLICANT: Lowitz, Kevin P.
; APPLICANT: Chen, Ruoping
; TITLE OF INVENTION: Endogenous,Constitutively Activated G Protein-Coupled Orphan Rec
; FILE REFERENCE: Aren0047
; CURRENT APPLICATION NUMBER: US/09/364,425B
; CURRENT FILING DATE: 2001-12-18
; PRIOR APPLICATION NUMBER: 60/094,879
; PRIOR FILING DATE: 1998-07-31
; PRIOR APPLICATION NUMBER: 60/106,300
; PRIOR FILING DATE: 1998-10-30
; PRIOR APPLICATION NUMBER: 60/110,906
; PRIOR FILING DATE: 1998-12-04
; PRIOR APPLICATION NUMBER: 60/121,851
; PRIOR FILING DATE: 1999-02-26
; NUMBER OF SEQ ID NOS: 60
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 22
; LENGTH: 1382
; TYPE: DNA
; ORGANISM: Homo sapiens
US-09-364-425B-22

```
  Query Match             6.7%;  Score 87.8;  DB 4;  Length 1382;
  Best Local Similarity   53.7%;  Pred. No. 1.2e-15;
  Matches  182;  Conservative    0;  Mismatches  157;  Indels    0;  Gaps    0;

Qy        160 GGCACCGTGGGCAATGTGCTCACCCTACTGGCCTTGGCCATCCAGCCCAAGCTCCGTACC 219
Db        181 GTCTGCCTGGGAAACCTGGTCATCGTGGTCACCTTGTACAAGAAGTCCTACCTCCTCACC 240

Qy        220 CGATTCAACCTGCTCATAGCCAACCTCACACTGGCTGATCTCCTCTACTGCACGCTCCTT 279
Db        241 CTCAGCAACAAGTTCGTCTTCAGCCTGACTCTGTCCAACTTCCTGCTGTCCGTGTTGGTG 300

Qy        280 CAGCCCTTCTCTGTGGACACCTACCTCCACCTGCACTGGCGCACCGGTGCCACCTTCTGC 339
Db        301 CTGCCTTTTGTGGTGACGAGCTCCATCCGCAGGGAATGGATCTTTGGTGTAGTGTGGTGC 360

Qy        340 AGGGTATTTGGGCTCCTCCTTTTTGCCTCCAATTCTGTCTCCATCCTGACCCTCTGCCTC 399
Db        361 AACTTCTCTGCCCTCCTCTACCTGCTGATCAGCTCTGCCAGCATGCTAACCCTCGGGGTC 420

Qy        400 ATCGCACTGGGACGCTACCTCCTCATTGCCCACCCTAAGCTTTTTCCCCAAGTTTTCAGT 459
Db        421 ATTGCCATCGACCGCTACTATGCTGTCCTGTACCCCATGGTGTACCCCATGAAGATCACA 480

Qy        460 GCCAAGGGGATAGTGCTGGCACTGGTGAGCACCTGGGTT 498
Db        481 GGGAACCGGGCTGTGATGGCACTTGTCTACATCTGGCTT 519
```